The Dawn of Reason, or Mental Traits in the Lower Animals. By James Weir, M. D. New York, The Macmillan Co. Pp. xiii+234. Price, $1.25.

Dr. Weir has evidently been a close observer of animal life for many years, and his zeal has given him wider opportunities for useful observation than most amateurs and many professional naturalists have had. His book contains the more important of his own original observations of the intelligent activities of animals, some interesting verifications of the results gained by other observers, and his opinions about the nature of animal consciousness. Everything is purposely put in as simple language as possible, and this perhaps is a sufficient reason for the utter neglect of many observations, experiments and opinions which oppose his views. Lloyd Morgan, for instance, is nowhere mentioned, not even in the bibliography.

The popular nature of Dr. Weir's exposition prevents any discussion here of his observations on the morphology of the sense-organs of various animals, *e. g.*, jelly-fish, grasshoppers, beetles. He finds the marginal bodies of jelly-fish to be visual, not auditory organs, locates the auditory organs of grasshoppers in the anterior pair of legs, finds those of the Diptera to be the 'balanciers' of Bolles Lee, and those of the Cerambyx beetle to be in the maxillary palpi. It would certainly seem worth while for Dr. Weir to present his data in complete form soon, so that those competent may judge of the soundness of his conclusions. He gives no drawings.

One cannot help lamenting the mental attitude which served as the inspiration to Dr. Weir's observations of the intelligent activities of animals. He craves a high development of mentality for the animals and has his eyes open only to possible evidence of it. He likes to find keen senses better than dull ones, reasonings than instincts, knowledge than ignorance. He psychologizes about animals as a lover might psychologize about his beloved. The disadvantages are obvious. On the other hand, there are some advantages, at least in the enthusiasm and patient labor which perhaps are due to the eulogizing temper. Anyone interested in the progress of comparative psychology must wish well to a man who, without the incentives of the professed naturalist, makes it a labor of love to watch animal life. I, for one, shall welcome such observations, even though they are more one-sided than Dr. Weir's. His favoritism toward animals, though it has deprived us of any records of unintelligent conduct and perhaps prevented the repetition of some tests and even distorted facts, has still failed to injure a very considerable number of suggestive and important observations. It will pay any student of animal psychology to read the book for the sake of these. They furnish interesting, and we hope reliable, data about the adaptive reactions of micro-organisms, the formation by insects of new associations in response to new situations, the formation by reptiles of habits due to the association of novel sights and sounds with certain reactions, about 'play' among insects, strange 'friendships' between animals, letisimulation, the activities of the harvesting ants, etc. A sample of Dr. Weir's keenness is his theory that the continual barking of dogs at night is explainable by the supposition that they bark at an echo. This hypothesis he supports by some very striking facts.

Of Dr. Weir's opinions about the meaning of his facts there is little to be said. His mind does not move freely and surely among psychological terms or theories or deductions. Reason means for him the source of all performances above the level of instinct, and his only basis of discrimination is the difference between high and low. His only theoretical problem is as to whether or not the human mind has developed from the brute mind. It will be a birthday for animal psychology when naturalists realize that this is among the least of its problems.

Edward Thorndike.
Western Reserve University.

SCIENTIFIC JOURNALS AND ARTICLES.

The December number of the *Bulletin of the American Mathematical Society* contains an account of the October meeting of the Society, by the Secretary, Professor F. N. Cole; 'Concerning a Linear Homogeneus Group in $C_{m,q}$ Variables Isomorphic to the General Linear

Homogeneous Group in m Variables,' by Dr. L. E. Dickson; 'A Second Locus Connected with a System of Coaxial Circles,' by Professor Thomas F. Holgate; 'Reciprocal Transformations of Projective Coordinates and the Theorem of Ceva and Menelaos,' by Professor Arnold Emch; 'Notes'; 'New Publications.' The January number of the *Bulletin* contains a report on the 'Theory of Projective Invariants: The Chief Contributions of a Decade,' by Professor H. S. White; 'Reye's Geometrie der Lage,' by Professor Charlotte Angas Scott; 'Burkhardt's Theory of Functions,' by Professor Maxime Bôcher; 'Darboux's Orthogonal Systems,' by Professor Edgar Odell Lovett; 'The New Mathematical Encyclopædia,' by Professor James Pierpont; 'Errata'; 'Notes'; 'New Publications.' The February number of the *Bulletin* contains an account of the Fifth Annual Meeting of the Society, by the Secretary; 'The December Meeting of the Chicago Section of the Society,' by Professor Thomas F. Holgate; 'Report on Recent Progress in the Theory of Groups of a Finite Order,' by Dr. G. A. Miller; 'Note on Burnside's Theory of Groups,' by Dr. G. A. Miller; 'On a Regular Configuration of Ten Line Pairs Conjugate as to a Quadric,' by Professor F. Morley; 'Shorter Notices,' by Professors Ernest W. Brown, Edgar Odell Lovett, J. W. A. Young, Alexander Ziwet; 'Notes'; 'New Publications.'

American Chemical Journal, March: 'On the Rearrangement of Imido-Esters,' by H. L. Wheeler and T. B. Johnson. 'On an Isomer of Potassium Ferricyanide,' by J. Locke and G. H. Edwards. By treating potassium ferricyanide with potassium chlorate and hydrochloric acid an isomer of this salt was obtained. An isomeric silver salt was also prepared and the reactions studied. In some cases the reactions of the isomers are so different that the author does not hesitate to accept this substance, which he calls potassium β-ferricyanide, as a new form. 'Reaction of Orthodiazobenzoic Acid with Sulphurous Acid and Copper Powder,' by W. E. Henderson. Experiments were carried out to test the statements so generally found in text-books that sulphonic acids are formed from the decomposition of diazo compounds by sulphurous acid in the presence of copper powder. The results showed that, under ordinary conditions, sulphonic acids were not formed. 'Direct Nitration of the Paraffins,' by O. A. Worstall. The author finds that the results as given in his earlier paper on the action of nitric acid on the paraffins hold for all the paraffins studied. 'Higher Primary Nitroparaffins,' by R. A. Worstall. The author has continued the study of the derivatives of the higher paraffins on the line suggested by Victor Meyer in his study of the lower members of the series. 'The Action of Ethylic Oxalate on Camphor,' by J. B. and A. Tingle. 'Liquid Acetylene Diiodide,' by E. H. Keiser. A second form of the three theoretically possible ones has been obtained in liquid form. 'A Simple Color Reaction for Methyl Alcohol,' by S. P. Mulliken and H. Scudder. The alcohol is converted into formic aldelyde by plunging a hot copper wire into it. Resorcin and sulphuric acid are then added and a characteristic color reaction follows. 'Reactions for the Detection of the Nitrogroup,' by S. P. Mulliken and E. R. Barker. The first method depends on the reduction to hydroxylamine and the test for this with silver nitrate, and the second on the conversion into rosaniline.

J. ELLIOTT GILPIN.

THE *Osprey*, for January, has for its first article some interesting 'Notes on *Eugenes fulgens*' by F. C. Willard, accompanied by a fine plate showing four nests. Next comes descriptions of the 'Nesting of the Alaska Bald Eagle,' by George G. Cantwell, followed by descriptions of the habits in captivity of Great Horned Owls, Barn Owls and young Short-eared Owls respectively, by M. A. Carriker, D. A. Cohen and Ludwig Kumlien. 'A Visit to Pelican Island, Indian River, Florida,' is described by L. W. Brownall, and the 'Nesting of the Black-and-White Warbler,' by J. Warren Jacobs. Other brief articles, editorials, notes and reviews complete the number.

THE leading article of the *Journal of the Boston Society of Medical Sciences* is a series of 'Observations upon the Elastic Tissue of Certain Human Arteries,' by George B. Magrath. Richard M. Pearce has a paper on 'Scarlet Fever; its Bacteriology, Gross and Minute

Anatomy,' and Horace D. Arnold one on the 'Weight of the (Normal) Heart in Adults,' the conclusion being that the average weight for males is 290 grams and for females 260 grams. The final article, 'A Study of the Encapsulated Bacilli,' by Lawrence W. Strong, finds that the gas production of these bacilli affords a valuable aid for their study and identification.

THE *Electrical World* and the *Electrical Engineer* will be issued, hereafter, as one publication, to be known as the *Electrical World and Engineer*, under the editorship of T. Commerford Martin and W. D. Weaver. W. J. Johnston, former editor of the *Electrical World*, has retired.

DR. W. P. WYNNE, F. R. S., has been elected editor of the Journal of the British Chemical Society.

SOCIETIES AND ACADEMIES.

THE ANNUAL MEETING OF THE NEW YORK ACADEMY OF SCIENCES, FEBRUARY 27, 1899.

AFTER the reading of the minutes of the last annual meeting, the reports of the officers for the year just closed were called for by the President, Professor Henry F. Osborn.

The Corresponding Secretary reported briefly that he had succeeded in correcting and revising the list of honorary and corresponding members, after a considerable amount of correspondence, and that the corrected list would be published in Part I. of the volume of Annals for 1899. The Recording Secretary then presented the following report, summarizing the progress and work of the Academy during the preceding year:

The last year of the Academy has been extremely satisfactory, and its affairs are in a much more promising condition than heretofore. Interest in our meetings has increased during the year, and the number of people cooperating in our work is much larger than ever before.

During the last fiscal year there have been thirty-one meetings of the several sections, three public lectures and one public reception. The sections now organized are those of Astronomy and Physics, Biology, Geology and Mineralogy, and of Anthropology, Psychology and Philology. The latter section has been divided into two sub-sections, for economy of effort. Particular mention should be made of the good work and increased interest in the sub-section of Anthropology and Psychology, largely due to the personal and persistent efforts of Dr. Boas.

During the year a total of ninety-four papers has been presented before the Academy, thirty-seven new members have been elected, twelve have resigned, leaving a total of three hundred and thirty-five on the Secretary's list, including six new life members. The Fifth Annual Reception held in April last was in some ways the most successful in the history of the Academy. During the year the by-laws have been very completely revised, simplified and made workable, particularly in such a way as to give the individual sections and sectional officers more importance in the program, and so as to reduce the number of business meetings at which the Academy must be formally organized for general business to one each month. The public lectures have been more firmly established than heretofore, and have been assigned to the various sections so that each department may be popularly represented. The printed program of the year's meetings has been announced in advance, and has been found very helpful.

The publications of the Academy have been greatly improved as to quality, appearance and dignity, by the change incorporated in January last, when the Transactions were abolished. The thanks of the Academy are certainly due to our enthusiastic and very careful editor, Mr. van Ingen, for the great amount of work and care that he has put upon the publications. It is through the publications only that we are known abroad in the world, and it is very necessary that we should thus appear in the most favorable manner possible.

The Academy is in great need of more money for publication, and our efforts should be devoted as fully as possible to the securing of contributions for such work. We are continually obliged to decline valuable scientific papers by our members because of a lack of funds for printing. This is a condition of affairs which should not be allowed to continue long.